

Wrenches

Box-end, open-end and combination wrenches (**Figure 11**) are available in a variety of types and sizes.

The number stamped on the wrench refers to the distance between the work areas. This must match the distance across two parallel flats on the bolt head or nut.

The box-end wrench is an excellent tool because it grips the fastener on all sides. This reduces the chance of the tool slipping. The box-end wrench is designed with either a 6- or 12-point opening. For stubborn or damaged fasteners, the 6-point provides superior holding ability by contacting the fastener across a wider area at all six edges. For general use, the 12-point works well. It allows the wrench to be removed and reinstalled without moving the handle over such a wide arc.

An open-end wrench is fast and works best in areas with limited overhead access. Because it contacts the fastener at only two points, an open-end wrench is subject to slipping under heavy force or if the tool or fastener is worn. A box-end wrench is preferred in most instances, especially when applying considerable force to a fastener.

The combination wrench has a box-end on one end and an open-end on the other. This combination makes it a very convenient tool.

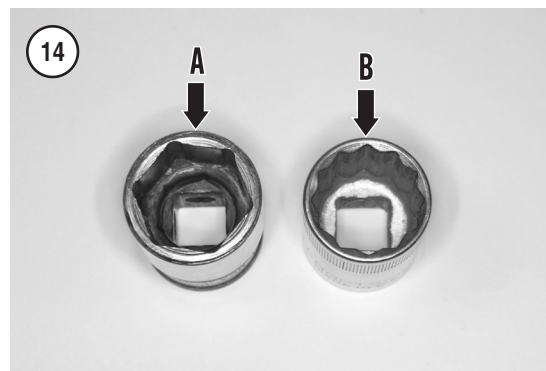
Adjustable Wrenches

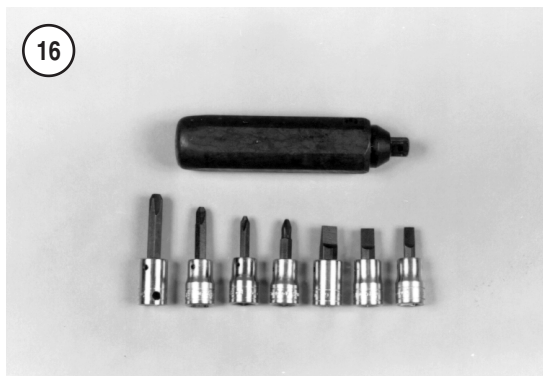
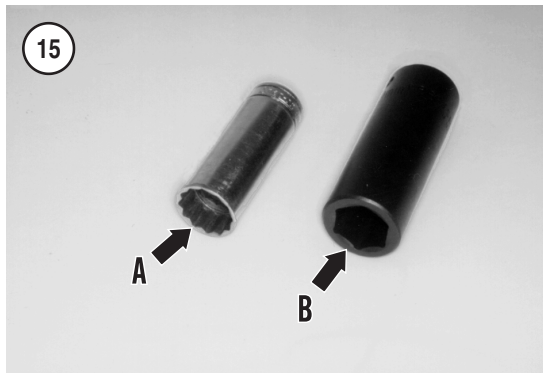
An adjustable wrench or Crescent wrench (**Figure 12**) fits nearly any nut or bolt head that has clear access around its entire perimeter. An adjustable wrench is best used as a backup wrench to hold a large nut or bolt while the other end is being loosened or tightened with a box-end or socket wrench.

Adjustable wrenches contact the fastener at only two points, which makes them more subject to slipping off the fastener. The fact that one jaw is adjustable and may loosen only aggravates this shortcoming. These wrenches are directional. Make certain the solid jaw is the one transmitting the force.

Socket Wrenches, Ratchets and Handles

Sockets that attach to a ratchet handle (**Figure 13**) are available with 6-point (A, **Figure 14**) or 12-point (B) openings and different drive sizes. The





drive size indicates the size of the square hole that accepts the ratchet handle. The number stamped on the socket is the size of the work area and must match the fastener head.

As with wrenches, a 6-point socket provides superior holding ability, while a 12-point socket needs to be moved only half as far to reposition it on the fastener.

Sockets are designated for either hand or impact use. Impact sockets are made of thicker material for more durability. Compare the size and wall thick-

ness of a 19-mm hand socket (A, **Figure 15**) and the 19-mm impact socket (B). Use impact sockets when using an impact driver or air tools. Use hand sockets with hand-driven attachments.

WARNING

Do not use hand sockets with air or impact tools. They may shatter and cause injury. Always wear eye protection when using any type of impact or air tool.

Various handles are available for sockets. The speed handle is used for fast operation. Flexible ratchet heads in varying lengths allow the socket to be turned with varying force and at odd angles. Extension bars allow the socket setup to reach difficult areas. The ratchet is the most versatile wrench. It allows the user to install or remove the nut without removing the socket.

Sockets combined with any number of drivers make them undoubtedly the fastest, safest and most convenient tool for fastener removal and installation.

Impact Driver

An impact driver provides extra force for removing fasteners by converting the impact of a hammer into a turning motion. This makes it possible to remove stubborn fasteners without damaging them. Impact drivers and interchangeable bits (**Figure 16**) are available from most tool suppliers. When using a socket with an impact driver, make sure the socket is designed for impact use. Refer to *Socket Wrenches, Ratchets and Handles* in this section.

WARNING

Do not use hand sockets with air tools or impact drivers, as they may shatter the socket and cause personal injury. Always wear eye protection when using any type of impact or air tool.

Allen Wrenches

Allen or setscrew wrenches (**Figure 17**) are used on fasteners with hexagonal recesses in the fastener head. These wrenches are available in L-shaped bars, sockets and T-handles. A metric set is required when working on most motorcycles made by Japa-

Copyright of Honda TRX350 RANCHER, 2000-2006 is the property of Penton Media, Inc. ("Clymer") and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.